REMARKS

In response to the Official Action mailed on April 21, 2006, 2006, the application has been amended. No new matter has been added. Reconsideration of the rejections of the claims is respectfully requested in view of the above amendments and the following remarks.

In paragraph 1 of the Official Action, claim 94 was objected to because of a typographical error, and in paragraph 3, claim 94 was rejected as indefinite because of lack of antecedent basis for the word "portion" after "control rod". Claim 94 has been amended to correct the typographical error and delete the unnecessary word "portion", thereby overcoming the objection and the rejection under 35 USC 112.

In paragraph 5 of the Official Action, claims 62 - 63, 93, and 95 - 102 were rejected under 35 U.S.C. 102(b) as anticipated by Kawamura (U.S. Patent No. 3,796,332). This rejection is respectfully traversed.

Amended claim 62 describes a clamping apparatus having four clamping arms each pivotably mounted on a frame for pivoting with respect to the frame with a single degree of freedom. Similarly, amended claims 95 and 96 each describe a clamping apparatus having clamping arms each pivotably mounted on a frame for pivoting with respect to the frame with a single degree of freedom. The amended claims are supported by Figures 4 - 10 of

the application as filed. Kawamura does not disclose or suggest such an arrangement.

Kawamura discloses a cargo handling device having gripping claws 16 - 19 mounted on holding arms 12 - 15 on two opposing sides of a gripping means 6. Each of the holding arms 12 - 15 is pivotably connected to a main body 7 of a gripping and suspending means 6 by universal joints 8 - 11 so that each of the holding arms 12 - 15 can pivot with two degrees of freedom. There is no teaching or suggestion in Kawamura of clamping arms pivotably mounted on a frame for pivoting with one degree of freedom as set forth in claims 62, 95, and 96. Therefore, Kawamura cannot anticipate these claims or claims 63, 93, and 97 - 102 which depend therefrom.

In paragraph 7 of the Official Action, claim 83 was rejected under 35 USC 103(a) as unpatentable over Kawamura in view of Kovacs (U.S. Patent No. 5,192,179). This rejection is respectfully traversed.

Claim 83 describes a clamping apparatus including an adjustable-length control rod for changing an angle of a contact portion of a clamping arm. Neither of the cited references discloses or suggests such an arrangement.

As acknowledged by the Official Action, the device disclosed in Kawamura does not have the ability to change the angle of a contact portion.

Kovacs was relied upon as supposedly showing a structure which changes the angle of an implement relative to an arm by

adjusting the length of a link element. This characterization of Kovacs does not appear to be correct. Kovacs does include structure for adjusting the angle of an implement with respect to the vertical, but Kovacs does so not by changing the length of a link but by changing the positions of the ends of fixed-length links. For example, in the embodiment shown in Figure 1B of Kovacs, the angle of a bucket B with respect to the vertical can be adjusted by activating hydraulic cylinder 48, which pivots arms 40 and 41 about axis A-A. The pivoting of arms 40 and 41 shifts the inboard pivot points (indicated by bolts 54) of links 50 and 51. When the hydraulic cylinder 48 is activated, the inboard pivot point of one of links 50 and 51 is shifted towards the bucket B, while the inboard pivot point of the other of the two links 50 and 51 is shifted away from the bucket B, thereby pivoting the bucket B about axis F-F. There is no change in the length of any link during this operation, and there is no link which is capable of changing in length.

Page 5 of the Official Action states that "the entire tilt mechanism 35" of Kovacs is considered to be an adjustable-length rod. Since the "tilt linkage assembly 35" which is described beginning in column 5, line 64 of Kovacs comprises a significant number of components, it is not clear to the Applicant which portion of those components the Examiner considers to constitute an adjustable-length rod, but as set forth above, it is clear that there is no adjustable length member in the structure disclosed in Kovacs.

Thus, as neither of the cited references discloses an

adjustable-length control rod, the references cannot be combined so as to result in an arrangement having all the features set forth in claim 83 and so cannot render this claim obvious. Claim 83 is therefore allowable.

Although it is believed that claim 83 in its present form is fully distinguished from Kawamura and Kovacs, claim 83 has been amended to specify that the control rod is a rigid member, to distinguish it from any articulated assemblage of components in Kovacs which the Examiner perhaps considers to be an adjustable-length rod. Claim 64 has been similarly amended. These amendments are supported by page 19 of the application as filed, which describe the stiffness of control rod 240.

In paragraph 8 of the Official Action, claims 64, 75, and 94 were rejected under 35 U.S.C. 103(a) as unpatentable over Kawamura in view of Molby (U.S. Patent No. 4,422,818). This rejection is respectfully traversed because the references do not provide any motivation to combine them in the manner proposed by the Official Action.

As stated above, Kawamura discloses a cargo handling device having a plurality of gripping claws 16 - 19 mounted on fixed-length holding arms 12 - 15 which are connected to a main body 7 by universal joints.

Molby discloses a scrapper type vehicle for use in lifting junk cars or the like onto a transport vehicle. It includes lifting prongs 31 which can be tilted with respect to the horizontal by means of hydraulic rams 51.

According to the Official Action, it would have been obvious to have modified the apparatus of Kawamura by utilizing adjustable length control rods for adjusting the angle of the gripping claws 16 - 19 for improved load handling.

However, the reasons why Molby employs hydraulic rams 51 to adjust the angle of the lifting prongs 31 of its device are inapplicable to Kawamura because the two inventions relate to devices which operate in fundamentally different ways.

Molby engages a load to be lifted (particularly a junk car) by impaling the load with the lifting prongs 31 (column 1, line 59), such as by inserting the prongs 31 through the windows of a junk car (column 4, line 43). Since a junk car is impaled rather than being grasped, if the prongs 31 are always maintained horizontal, there is the possibility of the car inadvertently becoming disengaged from the prongs 31 if the car strikes another object while being lifted, and there is the possibility of the car not readily disengaging from the prongs 31 when it is attempted to withdraw the prongs 31 from the car. Therefore, the hydraulic rams 51 are provided so that the prongs 31 can be made to slope downwards so that a car or other load can be made to slide off the ends of the prongs 31 more easily (column 4, line 27) at the time of unloading, or so that the prongs 31 can be given an upward tilt (column 4, line 30), presumably to prevent the load from easily slipping off the ends of the prongs 31 during handling.

However, these functions of the hydraulic rams 51 of Molby are unnecessary in the device of Kawamura. The device of

Kawamura grasps a load from opposite sides rather than impaling it, so a load is prevented from falling off by the grasping force of the gripping claws, and when an object needs to be released, it is sufficient to simply move the grasping claws away from each other. The problem of a load inadvertently sliding off the ends of prongs or of failing to disengage when desired is not one that can occur with the device of Kawamura. Furthermore, the grasping claws of Kawamura already having sloping surfaces at their lower ends, so there is no need to change the angle of any member in order to disengage a load or to hold it in place.

Furthermore, since each of the gripping claws of Kawamura is rotatably supported by 4 separate links, adjusting the angle of the gripping claws by changing the lengths of the holding arms 12 - 15 would be operation of great kinematic complexity, and one which the references nowhere teach how to perform.

Thus, as the reasons why Molby employs hydraulic rams 51 to adjust the angles of prongs 31 are inapplicable to the device of Kawamura, a person skilled in the art would find no motivation to modify Kawamura in the manner proposed in the Official Action. As such, the rejection fails to set forth a *prima facie* case of obviousness of claims 64, 75, and 94. These claims are therefore allowable.

With respect to claim 94, page 6 of the Official Action states that it would have been obvious to have modified the holding arms 12 - 15 of Kawamura so as to connect them to the main body 7 with pivots providing a single degree of freedom rather than with universal joints such as are actually used in

Kawamura. However, such a modification of Kawamura would make it impossible to adjust the spacing between two gripping clamps on the same side of a load, which is a major objective of the device of Kawamura. As stated in column 1, holding arms can shift in parallel in the rear and front directions according to the shape of cargo, with the width of the place of gripping of cargo being determined so as to transport materials effectively and properly in response to the shape and size of the materials. There can be no motivation to modify a reference so that it no longer achieves one of its stated purposes. As such, the proposed modification of Kawamura is unreasonable, so the rejection of claim 94 does not set forth a *prima facie* case of obviousness.

In paragraph 9 of the Official Action, claims 62, 63, 85, 90 - 93, and 95 - 102 were rejected under 35 U.S.C. 103(a) as unpatentable over Tygard (U.S. Patent No. 5,516,255) in view of Kawamura. This rejection is respectfully traversed because the references provide no motivation to combine them in the manner proposed by the Official Action.

Tygard was relied upon as teaching a clamping apparatus for grasping a rectangular layer of articles from four sides, while Kawamura was relied upon as showing a clamping apparatus employing a four-bar linkage. According to the Official Action, it would have been obvious to have modified the apparatus of Tygard to utilize a four-bar linkage to control the angle of the contact portion of each clamping arm as taught by Kawamura.

While a person skilled in the art would have been *capable* of

making such a modification of the Tygard reference, it is not a combination that he would have been motivated to make for several reasons. As discussed on pages 14 and 15 of the amendment filed on February 16, 2006, in the field to which the present invention relates, which is the field of handling layers of goods stacked atop pallets in warehouses, in the past, it was considered acceptable for the clamping pads of a clamping apparatus to be either to be rigidly mounted at the bottom of an arm (as shown in U.S. Patent No. 5,253,974 (Williams), a copy of the front page of which was submitted with that amendment), or for a clamping pad to be able to freely pivot with respect to an arm (as shown in U.S. Patent No. 5,161,934 (Richardson) or U.S. Patent No. 5,516,255 (Tygard), copies of the front pages of which were also submitted with that amendment). There was no recognition in the relevant field of art that these arrangements posed any problems or that there was any need for or room for improvement in the manner in which a clamping pad clamped a layer of goods on a pallet. Kawamura discloses that its structure is able to move holding arms while always maintaining gripping claws horizontal by use of a parallel linkage, but a person skilled in the art of the Tygard reference would have found no relevance to this teaching, for there is no teaching in Kawamura of any problem associated with the operation of a conventional clamping apparatus for grasping a load of goods on a pallet. Moreover, a person working in the field of the Tygard reference would not have considered the teachings of Kawamura to have any relevance to the specific field in which he was working, since Kawamura

relates to "the transport operation of iron materials in either of the steel manufacturing plant or in the carrying out of timbers or iron ores from forest or mines and the like" (column 1, lines 21 - 24 of Kawamura). There is no obvious relevance of Kawamura, which pertains to the handling of bulk cargo, to the field of Tygard, which pertains to the handling of readily damageable items such as foods and beverages arranged in cartons on pallets.

Thus, as a person skilled in the art would have found no motivation from the references to combine Tygard and Kawamura as proposed by the Official Action, the rejections of claims 62, 63, 85, 90 - 93, and 95 - 102 fail to set forth a *prima facie* case of obviousness. These claims are therefore allowable.

Concerning claim 92, the Official Action states that the angle of slope of the contact portion set forth in this claim "is an obvious design expediency based on the characteristics of the load to be handled". It is not seen how describing a feature as a "design expediency" automatically renders that feature obvious. Every feature of a claim has in some sense been designed by the inventor. Furthermore, the fact that a feature is "expedient" (which Webster's defines as "useful for effecting a desired result; suited to the circumstances or the occasion; advantageous; convenient") would seem to endorse the inventiveness of a feature, not condemn it, and is certainly evidence of its utility. At any rate, whether a feature is a matter of "design" and whether it is "expedient" is not the proper standard for obviousness. The correct question which

needs to be asked is whether the prior art cited by the Official Action teaches or suggests the recited feature. The rejection of claim 92 presents no evidence that this feature is anywhere disclosed or suggested by the prior art, and as such, the rejection fails to set forth a *prima facie* case of obviousness and thus is improper.

In light of the foregoing remarks, it is believed that the present application is in condition for allowance. Favorable consideration is respectfully requested.

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